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***SOCIAL PREFERENCES AND POLITICAL SUPPORT FOR GERMANY'S ENERGY TURNAROUND: AN EXPERIMENTAL STUDY OF CONSUMER BEHAVIOR***

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## **Overview**

Global warming has affected energy and environmental policies throughout the world. In 2000 the German parliament enacted the Renewable Energies Act (“Eneuerbare-Energien-Gesetz”, EEG) as the primary measure to reduce national CO<sub>2</sub> emissions to 40 percent of its level in 1990. Highly subsidizing the use of renewable energy sources and increasing the efficiency of energy consumption in general have since then been the main vehicles of Germany’s energy turnaround, the so called *Energiewende*. However, the transformation from central energy supply based on fossile (and nuclear) fuels to decentral and renewable energy sources involved enormous costs – about 20 bn € in 2013 – to be borne almost entirely by private households through additional taxes (“EEG-Umlage”) and, thus, higher energy prices – about 5.28 eurocent per kWh. As taxes and energy prices keep rising, the “fair” distribution of the costs of the *Energiewende* among members of the society has become a big issue for German energy politics. Eventually, without the support of a majority of the population, the *Energiewende* is likely to fail.

This paper presents an experimental analysis of consumer’ fairness preferences with regard to sharing the costs of the *Energiewende* among different household types. In a series of highly incentivized choice experiments with non-standard subjects (i.e. a representative sample of subjects recruited from the general population), we assess both subjects’ willingness-to-pay (WTP) for green electricity and their distributional preferences (see also Menges et al., 2005 and Menges and Traub, 2009). Preliminary data analysis of a pilot study clearly shows that private WTP depends highly on subjects social preferences and the perceived fairness of the taxation scheme. Subjects generally prefer a progressive taxation scheme.

## **Methods**

We conduct an artefactual field experiment, i.e. a choice experiment with a representative sample of subjects recruited from the general population (Harrison and List, 2004) in order to assess German households’ willingness-to-pay for the energy turnaround and their distributional preferences regarding the sharing of the costs of the *Energiewende*. We construct a nonlinear public goods experiment, where subjects decide on how the costs of the *Energiewende* ought to be divided among the community and correlate these distributional preferences with subjects’ WTP for green electricity.

In order to reduce possible hypothetical bias, we analyse individual choice behaviour in a highly incentivized cheap-talk design. Subjects are informed about the hypothetical character of this experiment, but are asked to behave as realistically as possible. In addition, subjects earn real money in the course of the experiment (up to 200 € in about 20 Minutes). Apart from the usual show-up fee, subjects have the chance to “win” their achieved personal income. Personal income depends on individual endowment and on how much the respective subject was willing to spend on the public good “reduction of greenhouse gas emission” (by consuming more green electricity). The latter amount is actually deducted from the subject’s initial endowment and used to buy CO<sub>2</sub> certificates.

The experiment consists of three parts. It starts with a general social-preferences test developed by Balafoutas et al (2013). By means of this incentivized test, we assess subjects’ general social preferences, that is, subjects are assigned to specific types like being “inequality averse”, “spiteful” or “efficiency loving”. In the main part, the choice experiment regarding the distribution of the costs of the “*Energiewende*” is conducted. Subjects are randomly

assigned to artificial societies consisting of heterogeneous income groups (low, medium, high). The costs for the public good (i.e. the Energiewende) are common knowledge in the basic treatment and unsecure in other treatments. Subjects chose anonymously how they want to divide the costs of the "Energiewende" between the three income groups by fixing the parameters of a distribution scheme, where the resulting Energy tax can be regressive, proportional or progressive. The payoff mechanism is as follows: One decision per group is randomly selected for payoff; the median voter's tax scheme is applied and subjects' receive their respective incomes after deducting the tax. Afterwards, subjects can voluntarily spend additional money on green electricity. Furthermore, subjects are asked for sociodemographic data and attitudes towards the energy turnaround. The experimental data is matched with the German Household Energy Consumption Panel in order to extrapolate results for the whole population.

## Results

A pilot experiment was conducted at the University of Bremen in December 2013; the main experiment will take place in June 2014. Preliminary data analysis shows that subjects prefer a relatively progressive cost sharing of the Energiewende. With regard to the sample median, we observe a cost distribution, where members of the low income group would have to pay 31 % of their free budgets, the medium income group 50 %, and the high income group 56 %. In all rounds of the experiment, the median voter opted for a progressive distribution of cost shares.

Disaggregating results with respect to subject types, we find that efficiency loving, altruistic, and inequality averse types have almost the same occurrence. Regarding general attitudes towards climate policy, most individuals generally agree with the Energiewende and, thus, are willing to accept higher energy costs.

## Conclusions

Our experiment investigates how the costs of Germany's energy turnaround, the Energiewende, should be distributed among different households in order to maximize its political support. Preliminary data analysis suggests that fairness considerations regarding the cost sharing of the Energiewende are extremely important. Subjects are willing to give up own income to support the climate policy, that is, there is significant willingness-to-pay for reducing greenhouse gas emissions. Almost 80 percent of the participants in our study were willing to spend an additional share of their incomes even after deducting energy taxes. Our preliminary findings clearly indicate that the distribution of tax burdens should follow the ability-to-pay principle in order to maximize political support for higher energy taxes. This means that higher income groups would have to bear a larger share of costs, compared to the current system, which is regressive due to higher relative energy expenses of low income households. Energy policy makers cannot disregard this fact without losing support for the energy turnaround.

## References

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